

# The Beginning of the End of Mediastinoscopy?

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The answer is (hold your breath)—not yet. But the evidence continues to accumulate for the efficacy of endobronchial ultrasound (EBUS) and esophageal ultrasound fine needle aspiration (FNA) approaches to mediastinal staging in non-small cell lung cancer (NSCLC). In this issue of the Journal, Ernst and colleagues<sup>1</sup> present a provocative study of the diagnostic yield of EBUS-FNA versus mediastinoscopy in patients with suspected or confirmed NSCLC. Patients underwent both procedures either concurrently or within a 1 week interval. Results were compared with surgical mediastinal lymph node dissection at the time of lung resection. EBUS-FNA overall had a higher diagnostic yield than mediastinoscopy in 66 patients. The majority of the differences observed between the two modalities appeared to occur in sampling station seven. The authors conclude that EBUS-FNA may be preferred in the histologic sampling of paratracheal and subcarinal mediastinal adenopathy because the diagnostic yield can surpass mediastinoscopy.

What's that you say? Mediastinoscopy has long been the gold standard in mediastinal staging, with its origins in the pre-CT and positron emission tomography (PET) scan days. Historically, it has been the key modality for accurate prelung resection staging of the mediastinum, and continues to be used routinely in many centers for all patients with suspected or confirmed NSCLC. The arrival of endoscopic staging approaches as new kids on the block has evoked visceral responses from many in the surgical old guard. Their promise as useful tools however continues to be demonstrated, leading to adoption by pulmonologists, gastroenterologists, and thoracic surgeons alike.

Will endoscopic mediastinal staging replace mediastinoscopy? Although it may well find a place as the first line approach, clearly more data is needed. Some cautionary notes remain. The data we have seen so far here and from others<sup>2</sup> is really by the innovators in endoscopic staging, and may not be representative of real world results. Our own experience using endoscopic staging as a front-line approach suggests that false-negatives revealed by subsequent mediastinoscopy do occur. That being said, results from mediastinoscopy itself are not universally equal. At present, operator "dose" is clearly variable for both endoscopic staging and mediastinoscopy, as are the subsequent results. Sorting out where and when endoscopic staging works and doesn't work best is clearly the next step.

One area of concern in interpreting results from the current study is the relatively poor results in the mediastinoscopy arm with respect to sensitivity and negative predictive value, particularly in the context of lymph nodes >10 mm. This does not compare well with other results available in the literature, specifically the 5.5% false negative rate of Lemaire et al.<sup>3</sup> or the 93.6% diagnostic rate found in Hammoud et al.<sup>4</sup> These are both large retrospective series with over 2000 patients, and represent the typical results in large volume thoracic surgical centers performing routine mediastinoscopy. The reported results in the current paper of a sensitivity of 68% and a negative predictive value of 59% do not compare well with what one would expect based on these and other reports. This is critically important in the context of conclusions about the role of endoscopic staging in management algorithms, particularly in head-to-head comparisons with mediastinoscopy.

The issue remains unsettled. These and other data are clearly thought provoking however, and suggest enough of a possible advantage (or at least equivalence) of

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EBUS-FNA to justify larger, confirmatory studies. Although the complication rates of mediastinoscopy in major centers remains low, it is certainly not zero. From a minimally invasive standpoint, endoscopic staging offers obvious advantages to the patient as a front-line approach. A randomization between the two groups will be the only way to clearly settle the issue, but the will to carry out such a study with the required patient numbers may not be there to get it done. Other issues complicate the picture, such as the emerging low rate of occult N2 disease for clinical T1N0 NSCLC in the modern CT/PET era. How endoscopic mediastinal staging performs in various NSCLC patient subgroups remains an unanswered question. Clearly however, the idea of a minimally invasive pathway for early stage NSCLC involving endoscopic mediastinal staging and video assisted thoracic

surgery lobectomy is appealing. Lung cancer physicians eagerly await data demonstrating equivalent oncologic outcomes for such algorithms with more traditional approaches.

## REFERENCES

1. Ernst A, Anantham D, Eberhardt R, Krasnik M, Herth FJF. Diagnosis of mediastinal adenopathy—real-time endobronchial ultrasound guided needle aspiration versus mediastinoscopy. *J Thorac Oncol* 2008;577–582.
2. Wallace MB, Pascual JM, Raimondo M, et al. Minimally invasive endoscopic staging of suspected lung cancer. *JAMA* 2008;299:540–546.
3. Lemaire A, Nikolic I, Petersen T, et al. Nine-year single center experience with cervical mediastinoscopy: complications and false negative rate. *Ann Thorac Surg* 2006;82:1185–1189; discussion 1189–1190.
4. Hammoud ZT, Anderson RC, Meyers BF, et al. The current role of mediastinoscopy in the evaluation of thoracic disease. *J Thorac Cardiovasc Surg* 1999;118:894–899.